Computer Science Education in Arkansas

This fact sheet is intended to provide information pertaining to the implementation of computer science education in Arkansas public schools beginning with the 2015-2016 school year.

Requirement to Offer a Computer Science Course
(Act 187 of the Regular Session of the 90th General Assembly)

What does Act 187 mean for my school?

A.C.A. § 6-16-146 states, in part, that "(a) *[b]eginning in the 2015-2016 school year, a public high school or public charter high school shall offer at least one (1) computer science course at the high school level.*" The Arkansas Department of Education (ADE) has interpreted Act 187 to mean that every high school in the state must make at least one computer science course available to students, pursuant to the provisions within Act 853 of the Regular Session of the 90th General Assembly (A.C.A. § 6-15-213).

What course(s) can my school use to meet the requirements of Act 187?

The approved courses include: ADE Computer Science and Mathematics, ADE Essentials of Computer Programming, College Board Advanced Placement (AP) Computer Science, and International Baccalaureate (IB) Computer Science (SL or HL).

Course Codes

What are the course codes we need to use for these courses?

The answer to this question is based on three decisions that must be made at the local level.

1. What area requirement under the 38 required courses do we want this class to meet?
2. What credit should the student receive for this course?
3. What is the certification of the teacher of record for this course?

The attached chart can help a district answer these questions. Check the ADE Course Code Management System for the latest course code information.

Licensure Requirements of the ADE Approved Computer Science Courses

What licensure requirements are there for the four courses?

Please refer to the attached chart for the required licensure areas.

What do we do if we want to teach the Essentials of Computer Science Course and the teacher of record does not have the ADE computer science endorsement or ACE computer science certification?

Any teacher with a standard K-6, 4-8, or 7-12 license will be able to add the 4-12 computer science endorsement to their license by taking and meeting the ADE approved cut score on the Praxis™ Computer Science (#5651) exam. The scheduled testing windows are June 15-26, 2015; August 10-22, 2015; Sept 8-19, 2015; Nov 2-14, 2015; Feb 1-13, 2016; April 4-16, 2016; and July 4-16, 2016.

Has the cut score for the Praxis Exam for Computer Science been set by ADE?

At its May 2015 meeting, the State Board of Education adopted the Praxis™ Computer Science (5651) test with a cut score of 171 effective immediately.

Will ADE reimburse teachers for the cost of the Praxis™ Computer Science (#5651) exam?

The first 200 Arkansas educators who pass the Praxis™ Computer Science (5651) assessment for an Arkansas educator license in Computer Science and add the area to their Arkansas Educator's License may be eligible for a one-time assessment fee reimbursement by ADE.

More information on the reimbursement process and requirements can be found on [Commissioner's Memo LIC-15-035](http://goo.gl/vCLXpd) (http://goo.gl/vCLXpd).

If the Exam for Computer Science testing window does not begin until late June, what do we do if we have a teacher who wants to teach the course under the Computer Science certification in the 2015-2016 school year?

A teacher with an elementary, middle, or secondary license who wants to teach this course under a computer science certification but will not have the computer endorsement on their license by the first day of the school year must place an ADE Additional Licensure Plan (ALP) for Computer Science. More information on adding Computer Science to an existing license can be found at: http://www.arkansased.gov/divisions/human-resources-educator-effectiveness-and-licensure/educator-licensure-unit/add-licensure-area-to-license

Refer to [Commissioner's Memo LIC-15-028](#) for additional information regarding the Praxis™ Computer Science (#5651) exam.

The ALP states that "an educator working under this ALP shall make adequate yearly progress (as specified in the Rules Governing the Educator Licensure) each school year that the educator is employed in the out-of-area assignment" what does this mean?

Schools and teachers with specific questions should contact the ADE licensure unit for clarification of the Rules Governing the Educator Licensure, which outlines these requirements; however, "adequate yearly progress" would mean the following for most teachers:

- **Year One**
  - The teacher utilizing an ALP must either pass the Praxis exam for the content area or successfully complete three (3) hours of college credit in that content area, before the first day of the following school year.
- **Year Two**
  - If the teacher passed the Praxis for the content area in year one and added the endorsement to his or her licensure then an ALP for year two is not needed.
  - If the teacher did not pass the Praxis for the content area but successfully completed three (3) hours of college credit in that content area before the first day of the school year he or she may be placed on an ALP for year two.
  - If he or she did not pass the Praxis and did not complete three (3) hours of college credit in that content area before the first day of the school year he or she may NOT be placed on an ALP for year two and may not teach the course.
  - During year two the teacher must either pass the Praxis exam for the content area or successfully complete an additional six (6) hours of college credit in that content area, before the first day of the following school year.
- **Year Three**
  - If the teacher passed the Praxis for the content area in year two and added the endorsement to his or her licensure then an ALP for year three is not needed.
  - If the teacher did not pass the Praxis for content area but successfully completed 6 additional hours of college credit in that content area before the first day of the school year he or she may be placed on an ALP for year three.
  - If he or she did not pass the Praxis and did not complete six (6) hours of college credit in that content area before the first day of the school year he or she may NOT be placed on an ALP for year three and may not teach the course.
  - During year three, the teacher must pass the Praxis exam for the content area. Teachers on a year three ALP who do not pass the Praxis exam for the content area before the first day of the following school year, can not continue teaching the course under any ALP.

Our school may choose not to place a teacher on an ALP for the 2015-2016 school year, are there any other options available to schools to meet the requirement to offer this course?

Virtual Arkansas will be providing instruction in the two ADE computer science courses at no charge to districts.

In addition, schools may consider utilizing a teacher with an Arkansas' Provisional Professional Teaching License (PPTL). The PPTL is a non-traditional licensure route available to experienced professionals seeking a computer science license.

The PPTL is a three-year, provisional educator license may be issued to an experienced computer science professional for the purpose of teaching on a part-time or full-time basis as teacher-of-record in an Arkansas public school. For qualifications and more information, please contact the Office of Educator Licensure at 501-682-4342. Rules for the PPTL can be found at: http://www.arkansased.gov/public/userfiles/Legal/Legal-Current%20Rules/ADE317_Educator_Licensure_EMERGENCY_RULE_SBOE_2015_02_12_Approved.pdf

All questions regarding licensure should be directed to [Darrick Williams](), ADE Director of Educator Licensure, at 501-683-3126.

Professional Development for Teachers

Is ADE requiring specific professional development (PD) for teachers of these computer science courses?

There are no additional ADE PD requirements for teachers to teach these courses. Notwithstanding, all teachers of the AP and IB courses must have the appropriate training required by AP and IB for the courses. Refer to the ADE rules for AP and IB courses.

What other PD offerings are available?

Many STEM centers, educational institutions, and co-ops are planning to offer computer science PD this summer; check with your local institutions for information on offerings. In addition, ADE is working with AETN ArkansasIDEAS to produce computer science PD that should be available for teachers on the ArkansasIDEAS portal for the 2015-2016 school year.

Computer Science Curriculum and Instruction

Where can I find the Curriculum Frameworks for these four computer science courses?

The Curriculum Frameworks for the two ADE courses can be downloaded at http://www.arkansased.gov/divisions/learning-services/curriculum-and-instruction/curriculum-framework-documents/computer-science. The curriculum for the AP and IB courses may be available through AP and IB.

Where can I find information and resources to help me teach one of these four computer science courses?

ADE has established and will be regularly updating a computer science information page, which can be accessed at http://www.arkansased.gov/divisions/learning-services/curriculum-and-instruction/computer-science

What curriculum, curriculum programs, textbooks, or instructional materials has ADE approved for these courses?

ADE has not made a recommendation regarding instructional materials or provided an approval of specific curriculum products or programs. Notwithstanding, ADE may choose in the future to acknowledge that certain curriculum programs meet the requirements of the curriculum frameworks. A school may use any appropriate instructional materials, curriculum products, or programs as long as the school superintendent is willing to attest that the curriculum frameworks are being fully taught. This attestation is part of the Statement of Assurances that is required to be submitted annually by each district's superintendent.

What are the pre-requisites for these courses?

ADE Computer Science and Mathematics requires successful completion of Algebra II or concurrent enrollment in Algebra II. ADE Essentials of Computer Programming has no pre-requisites but is only approved for grades 9-12; schools may seek approval to offer this course through the standard 5-8 course approval process. The AP and IB courses are 9-12 grade courses that have prerequisites established by AP and IB.

Student Graduation Credit

What credit will be awarded to a student who takes one of these courses?

This depends on the course and the certification of the teacher of record for the course; refer to the attached chart.

What is the Computer Science Flex Credit?

On April 9, 2015, the SBE approved an update to the Standards of Accreditation that created the computer science credit that ADE is referring to as a flex credit. A student receiving a computer science flex credit can substitute that credit in place of the 4th math credit requirement or the 3rd science credit requirement for either Smart Core or Core graduation paths.

Can the computer science flex credit substitute for the Biology requirement in Smart Core or Core?

No, all students must earn one credit in Biology, IB Biology, ADE Biology, ADE Approved Biology Honors, or Concurrent Credit Biology.

Why is a separate course code listed for math licensed teachers and math credit if the computer science flex credit can substitute for the 4th math credit requirement?

The computer science flex credit is not a math or a science credit. The flex credit substitutes for the requirement of a 4th math or 3rd science. This distinction is made because of the highly qualified teacher requirements for awarding core academic credits.

Why might a school choose to use a math certified teacher instead of a teacher with the new computer science licensure?

The school can choose to use either; however, the school should also be fully informed of the pros and cons of each. Though there would be no effective difference in meeting the ADE requirements for graduation, there might be a local requirement for four math credits. Since a computer science credit is not a math credit, the school would need to make sure the policy is updated and/or students are aware of this local requirement. In addition, some post secondary institutions may require four math credits or three science credits and may not recognize a computer science flex credit to meet these requirements. This could have negative effects on a student's college admittance.

What if the student already has all four of his/her required math credits and all three of his/her required science credits?

If a student already has all four of his/her required math credits and all three of his or her required science credits and takes one of these courses, his or her credit will roll over to become a career focus credit.

Computer Science Quick Reference Chart

Course [Course Code]	Approved Licensure Area	Credit to be awarded to the student	Area for the 38 Required Courses
Computer Science and Mathematics [439100]	Secondary Mathematics	4th Year Math Beyond Algebra II (Smart Core or Core)	1 of the 6 math, and 1 required computer science
Computer Science and Mathematics [460050]	ADE Computer Science	Computer Science Flex Credit	1 required computer science
Computer Science and Mathematics [460050]	Career and Technical Education (CTE) Business Education	Computer Science Flex Credit	1 required computer science
Essentials of Computer Programming [460020]	ADE Computer Science	Computer Science Flex Credit	1 required computer science
Essentials of Computer Programming [460020]	Career and Technical Education (CTE) Business Education	Computer Science Flex Credit	1 required computer science
College Board Advanced Placement (AP) Computer Science* [539080]	Secondary Mathematics (with current College Board approved training)	4th Year Math Beyond Algebra II (Smart Core or Core)	1 of the 6 math, and 1 required computer science 1 of 9 required CTE Units**
AP Computer Science* [560050]	Any Secondary Certification Area (with current College Board approved training)	Computer Science Flex Credit	1 required computer science, and 1 of 9 required CTE Units**
International Baccalaureate (IB) Computer Science* [539110]	Secondary Mathematics (with the approved IB training)	4th Year Math Beyond Algebra II (Smart Core or Core)	1 of the 6 math, and 1 required computer science 1 of 9 required CTE Units**
IB Computer Science* [560060]	Any Secondary Certification Area (with the approved IB training)	Computer Science Flex Credit	1 required computer science 1 of 9 required CTE Units**

*Refer to the ADE rules for AP and IB courses.
**Requires Arkansas Department of Career Education program approval

Where can I learn more?

For more information on this issue, visit: http://www.arkansased.gov/divisions/learning-services/curriculum-and-instruction/computer-science